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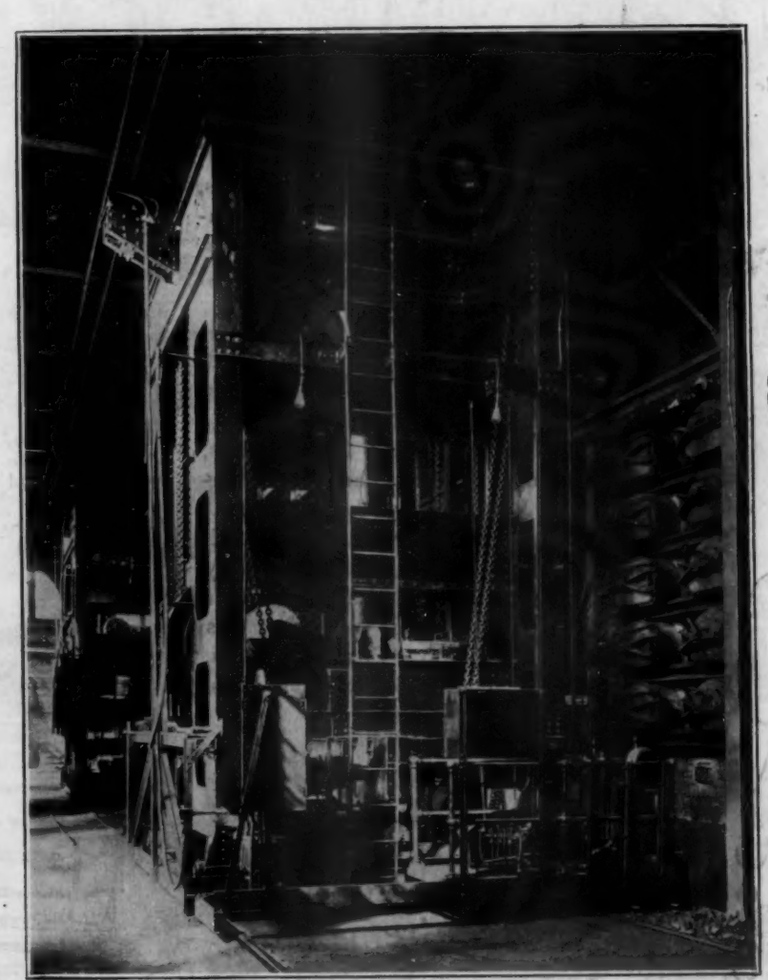

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BALTIMORE **NEW YORK**

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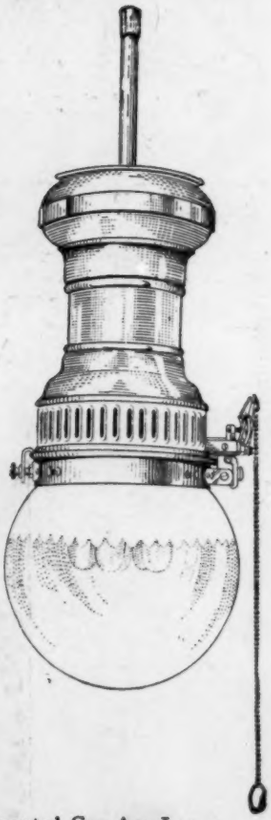

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SIXTY-SEVENTH YEAR

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Problems of the British Gas Industry

Some pertinent developments of interest to American gas men

C. H. S. Tupholme
Editor, Gas Engineer

THE all-absorbing topic in the British gas industry at present is the Prime Minister's Electricity Scheme. In brief, this scheme provides for co-ordination of the various generating stations distributed throughout the country so as to make electricity available to all householders at a very much lower cost than now obtains. An executive board is to be set up to carry out the interlinking of stations, working in conjunction with the Electricity Commissioners and the Ministry of Transport. No government subsidy for the electrical industry will be available, but the executive board will raise its own capital with the government guarantees behind it under what is known as the Trade Facilities Act.

Opinion in the gas industry has hardly had time to crystallize, though there are certain conclusions arrived at by the leaders of the British gas industry. In the first place, the gas industry claims that if the electrical industry is to be so assisted, then assistance for the gas industry should be available to the same extent. In addition, there is no doubt that electrical promises and talk of the past few years have depreciated gas securities and made it difficult to raise money for development, and the rate of interest has been affected accordingly. The chief harm to the gas industry, in the opinion of the writer, appears to be the effect on the investor.

Advertise the Gas Show Room

British gas undertakings, generally speaking, are large space-takers in their local papers, though criticism has often been leveled at the character of their advertisements, very often with excellent reason. The latest suggestion is that gas show rooms should be advertised in local papers to the same extent as the appliances that are sold there. This suggestion is the result of a house-to-house canvass undertaken in one of the larger cities, where it was found that, while householders were pretty well sold on gas appliances, very many of them had not the haziest idea where the show rooms were located, the easiest way to get there and what they would see when they found them. This is now being remedied and it is said that the sale of domestic gas appliances has taken a distinct upward turn since the population of that city was specifically invited to the show rooms in a short period of intensive advertising. Other cities are now thinking along the same lines.

Selling Gas to New Housing Schemes

British gas men realize the value of getting architects and builders sold on gas, and whenever new sites for housing schemes are known to be acquired gas salesmen are early on the scene. Too often, however, they find that, while they are usually successful in getting gas introduced for heating and cooking, very few people who come to see the new houses are aware of the fact. This problem has been solved at Leamington by erecting artistic signboards on new housing sites bearing the inscriptions, "Labor Saving Appliances by the Leamington Priors Gas Company," "Gas Lighting by the Leamington Priors Gas Company," and so on. The boards are circular, of wood with a linoleum surface. The letters are white on a black background, and a device is painted above the lettering in bright orange, symbolizing the light and heat obtainable from gas.

Novelty in Advertisements

The British undertakings are always striving after novelty in advertising gas and some of the better examples are illustrated.

E. L. Oughton, sales superintendent to the South Suburban Gas Company, which supplies a large part of the London suburbs on the south side, recently outlined a new housing development which he has in hand. The following are typical of this development: Gas lighting; fire points laid in each room; cooker, washer and geyser points; permanent gas grates in each bedroom; the coal grates in two reception rooms have been ordered so that an inset fire, his company hires, will fit perfectly, if required, in either room.

An interesting feature of these houses is that all the pipe runs will be standard for some hundreds of houses; and after the first has been carcassed, all pipes will be cut to length before being taken on the job.

An Advertisement Analysis

An analysis of the number and character of newspaper advertisements of new estates and houses provides material for furious thought, and the following analysis is typical of a recent issue of a prominent newspaper:

Electric light and gas, 9.
Electric light and gas not mentioned, 16.
Electric light only mentioned, 6.
Gas and electric light laid on in every room, 2.
Electric light and power point in every room, two gas or electric fires and automatic water heater, 1.
Gas and electric light, gas copper, point for gas stove, 1.
Electric light and all labor-saving appliances, 1.
Electric light, five gas points and coke boiler, 1.
Electric light and barreled for gas, 1.

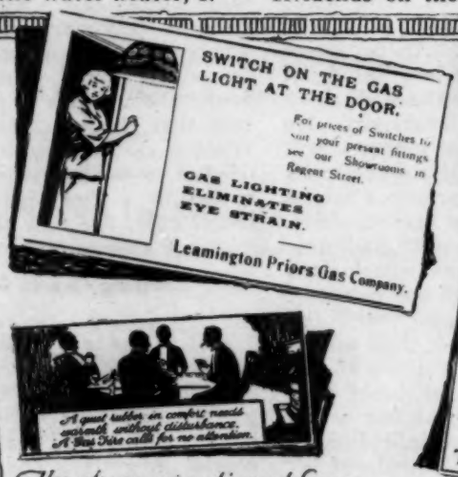
Selling Coke

The prize competition run by the "Gas Journal" has aroused great interest and many of the papers point out how the methods of selling gas coke to the public may be improved. One writer in particular suggests a direction in which the service of some coke departments could be improved, i.e., in the use of an "acknowledgment" postcard containing an acknowledgment of an order which does more than say the matter shall have "immediate attention." Most housewives find it a distinct convenience to know when they may expect delivery. Many women, especially those without a servant, have to leave their houses unoccupied at certain times of the day, and it would obviously be of great help to them to know when the coke van is likely to call.

This suggestion has been made before and the improvement it would effect, if carried out, is obvious. In the first place, it would keep customers' good will and it would also save the time of coke carmen who often return to the depot with their load on account of being unable to deliver. A little careful planning of each day's trip on the day before would obviate this difficulty and a postcard dropped into the mail the night before would eliminate many complaints and save much time.

Many gas managers have adopted these little refinements of service and the results have paid good dividends on the original trouble, time and money.

The above clipped from a Glasgow newspaper



The above was clipped from the top of a bridge marker issued by the Leamington Priors Gas Company

Left:- Service Slogan broadcast by the Birmingham Gas Dep't

Excellent examples of gas publicity from England and Scotland

Exhaust Steam in a Gas Plant*

How it can be used to advantage

R. E. Kruger

Assistant Engineer, Rochester, N. Y., Gas and Electric Corporation

EXHAUST steam in a gas plant may be considered as being a by-product of live steam. The by-product differing from the major product by reason of pressure, temperature and perhaps quality. Being a by-product, it must in amount, then, necessarily depend upon the quantity of major product used which, in turn, depends very largely upon the design and layout of gas station auxiliaries. Layout and design of auxiliaries are subject to the economics prevailing in any particular locality and to the judgment and desire of the men who plan the layout. For example, any of us might perfectly well specify that 95 per cent of all auxiliaries in a given proposed plant be motor driven and then turn around and specify the exact opposite for another location. In either of these cases I think we would ask ourselves what can I do with the exhaust steam available? Can I put it to some use or must I let it go to waste and can I justify this amount of energy to go to waste or can I partly justify this, for example, by putting in a condensing rather than a back pressure turbine?

I merely cite these points to bring out the fact that the question of how much exhaust steam is available is pretty deeply rooted.

How to Use It

Assuming, however, that exhaust steam is available, the question arises as to how it may be put to a useful purpose. I wish to point out here that by exhaust steam I mean steam at comparatively low pressure, for example, up to 10 pounds gauge pressure. This pressure I think is too low for power purposes in gas works practice. In the steel business I understand low pressure steam is used as a source of power.

Exhaust steam in a gas plant, then, must be used as a source of heat or used for a purpose in which high pressure is not necessary. These naturally fall into two groups.

Source of Heat:
- Buildings.
- Boiler Feed Water.
- Mother Liquor in $(NH4)_2$ SO4 Saturators.
- Solution for Liquid Purification.
- Pipe Lines and Tunnels—Tanks.
- Gas Holders.
- Ammonia Stills.

For use in Chemical Reactions as in
- Water Gas Sets, or
- Producer Gas Plant.

Heating Buildings

It is perfectly feasible and in many ways highly desirable to heat buildings by means of exhaust steam. The high pressure can be put to a useful purpose as a power. In this way the power unit really performs the operation ordinarily performed by a reducing valve. The investment cost may or may not be higher in case of exhaust steam.

The question of heating boiler feed water is an old one. Its economies are apparent and besides the advantages of putting hot water into a boiler are fairly generally recognized or possibly I might say that the disadvantages of putting cold water into a boiler have pointedly manifested themselves in several forms. Further expansion of this topic is possibly not justified at this time.

Heating Gas Holders

Gas holder heating confronts everyone seasonally in this latitude. A few years back it was almost universal practice to heat holders with high pressure steam. The reason being that fairly high pressure steam is necessary to successfully operate hose at high elevations and siphons. Within the past 10 years heating holders by neans of hot water is carried out successfully in a large number of plants. This, it seems to me, is a step toward real economy if the water can be obtained from gas condensers or from any other source as long as the hot water would otherwise go to waste. Exhaust steam may be successfully used to further increase the water temperature, if necessary, or for heating cold water to the desired temperature. This water may be heated in an ordinary enclosed feed water heater or the steam may be admitted directly into the water by means of an immersion heater built on the principle of an ordinary injector. The latter is obviously more efficient. Mr. Crosby, who, I presume, is a member of this association, has an outfit which accomplishes this very nicely. A very definite economy results from the use of exhaust steam for this purpose, besides it can be definitely shown that heating holders by hot water has some distinct advantages over heating with steam.

Exhaust Steam in Ammonia Stills

Here exhaust steam finds an application 365 days per year. The investment in lines is at a minimum and auxiliary equipment is unnecessary, for it is a matter of straight steam heating of ammonia liquor and other volatile constituents from the liquor. This is a straight steam distillation. The quality of the exhaust steam does not play any important part in this field. An ammonia still can be run at a comparatively low figure per unit of throughput if it is

* Written for the N. E. A. of Gas Engineers Convention, February 24 and 25, 1926.

equipped with a preheater and reflux condenser and then run on exhaust steam.

Exhaust steam can be put to a very similar use in a benzol plant. The chief difference fundamentally is merely the difference of commodity handled; that is, weak ammonia liquor in one case and some form of absorbing oil in the other. Exhaust steam may be used in benzol rectifying stills. Exhaust steam may also be used in the distillation of phenol from an acid solution of a sodium salt. This is in connection with the removal of phenol from waste liquors from gas plants and other chemical plants where phenol may be going out with the waste effluents. The question of phenol removal will become very important within the next few years.

The foregoing are merely examples of the use of exhaust steam as a source of heat or where it serves both as a source of heat and as a carrier of a substance, as in steam distillation.

Use of Exhaust Steam in Water Gas Generators

Exhaust steam has been used in water gas manufacture for a number of years, with, as far as I know, fairly good success. The thing to guard against is entrained water. This naturally has a wet blanket effect on the fuel bed, which leads to high generator fuel, a soft or wet fuel bed which may affect the blue gas composition and indirectly be reflected in oil per M. This is to be avoided, if possible, and it can be done by installing a superheater ahead of the generator. The importance of the question of steam quality is determined very largely by the difference in cost between boiler fuel and generator fuel.

The question of size and insulation of steam feed lines to the sets is an important item to consider when making an exhaust steam layout to supply generators. For example, it may be required to supply as high as 350-400 pounds of steam per minute to a large set. To get this in with a minimum of pressure requires a fairly large line. A minimum pressure is usually desirable and since that is true a large line becomes a necessity. The steam may be taken directly from an exhaust header. This works fairly well if there are a number of machines on the line that are properly kept in step. Even in plants where several machines are in operation pressures vary on the system and almost invariably steam goes to waste at times. The frequency of this waste depends upon the number of times the machines get out of step.

Steam Accumulators

The development in the gas industry within the last two years of the steam accumulator offers a solution, I believe, to some difficulties of handling exhaust steam in water gas generators. An accumulator serves the purpose of a surge tank on the exhaust steam system. It stores up steam at times when it cannot be used, only to give it up again at times of maximum demand. Also in so far as it absorbs steam as the steam pressure above the water line increases and again liberates this steam the moment the pressure on the water diminishes it acts automatically as a steam pressure regulator.

Again, since the accumulator must operate at a pressure higher than that in the generator it naturally follows that the steam is slightly superheated by the time it enters the generator, providing, of course, that the line from the accumulator to the generator is well insulated. This insures a delivery of high quality steam to the generators at all times at fairly uniform pressure without waste.

Accumulators are of various designs. There is no reason to believe that the best possible accumulator has been designed. One can readily see the good and bad points when the designs are examined. I believe there is a real place for an accumulator in many plants. Through its use exhaust steam may be utilized more fully and in water gas manufacture it can automatically remove most of the objections to its use. With an accumulator working plant, designers can lay out auxiliaries quite differently than formerly.

Exhaust Steam in Producer Gas Plant

A producer gas plant offers an attractive outlet for exhaust steam. It demands a fairly uniform and continuous supply every day in the year. An accumulator may or may not work out to good advantage in this connection. Local conditions will largely indicate this. Obviously that group of apparatus which can successfully use exhaust steam 365 days in the year is the most desirable outfit for exhaust steam and in connection with that sort of a group is where the installation of any accumulator is usually well worth considering.

Conclusion

I have thus, gentlemen, covered briefly a fair sized field and have given no actual results. I did this purposely, thinking that some general results might be brought out in such discussion as you may see fit to initiate. After all, on last analysis, general statements, if correct, have the widest application, and specific results and economies may not even apply to the fellow next door simply because it is not the wood in his layout.

In final analysis, each individual must decide with the character of his layout as a base as to how far he can afford to go with the use of exhaust steam. In this brief paper, in other words, I have pointed out to what uses exhaust steam can be put if it is available. The technical difficulties of its application are largely solved. There remains only the question of how far can an operator afford to put it to use economically, and that is an individual rather than a general problem.

A Manufacturer's Research and Testing Laboratory

How the Standard Gas Equipment Corporation laboratory functions

C. W. McCampbell

JUST at present gas industry laboratories are very much in the limelight. The A. G. A. Appliance Testing Laboratory, at Cleveland, and under the able direction of R. M. Connor is now functioning. No more important venture on the part of the gas industry has ever been undertaken. The biggest handicap to expansion has in the past been due to lack of extensive research and experiment, as well as to the lack of definite safety and performance standards for gas appliances.

The A. G. A. Testing Laboratory will soon make certified gas appliances a national actuality. The benefits will be tremendous. Manufacturers who have for many years merchandised appliances of only the highest merit will no longer suffer from the sales blight created wherever inefficient, unsafe appliances have been sold; while gas companies will reap a corresponding benefit. Once the public has been educated to buy only A. G. A. tested and certified gas appliances, gas as a fuel will take on a new prestige that will greatly help it come into its own.

Office and Planning Department

Scarcely less important are the laboratories conducted by individual manufacturers and large metropolitan gas companies. Of course, not all manufacturers and only a few gas companies operate on a sufficiently large scale to maintain fully equipped laboratories for research and testing.

The laboratory of the Standard Gas Equipment Corporation has been functioning for many years under the competent direction of H. W. O'Dowd and is one of the two or three best equipped laboratories in the world for gas appliance testing and research.

It is located in the Vulcan Division plant at Jersey City and is at present being enlarged to serve competently all four divisions—namely, Vulcan, Oriole, Triplex, Acorn. The personnel has been increased, while the floor space occupied is now four times the original size.

Purpose of the Laboratory

It was originated to conceive, design, build and test better gas appliances. In addition, its members plan the plant improvements, design and construct new equipment, buildings and devices for the increase of production and the bettering of S. G. E. appliances; while all incoming materials are tested to be certain that they conform to accepted specifications.

The laboratory consists of two divisions. There is the Plant Division for tackling the mechanical problems in the plant, and the Engineering Laboratory for undertaking to produce superior gas appliances. They are purposely inter-related and under the same management so that the best mechanical skill in both divisions can go into the appliances manufactured.

The laboratory occupies 4,800 square feet of floor space. This space is partitioned off to include an office and planning department, an experimental work shop, a gas analysis section, a huge testing floor, a conference room and an exhibit and photographing floor.

The Equipment

Among the inventory of the laboratory equipment might be mentioned a partial list of the equipment maintained. The name of the article will immediately suggest the test which it pertains to.

1. Iodine Pentoxide Gas Analysis for Carbon Monoxide determination.
2. Elliot Apparatus for general analysis of flue and other gases.
3. Mercury Cock-testing apparatus.
4. Taylor multiple element indicating pyrometer for oven heat distribution.
5. Englehard Contact Pyrometer for determining temperature of griddle, hotel range and Smooth-top tops.
6. Recording pressure gauge for recording gas pressures.
7. Gas booster for any gas pressure.
8. Gas governors to hold any gas pressures.
9. Gasometer for raising gas pressures.
10. Several wet test meters for measuring gas consumption.
11. Over 250 thermometers of various kinds for fire hazard, efficiency and many other tests.

Conducting an Oven Test

How a New Appliance Is Developed

The idea for an appliance or device is first worked out on paper in the office and planning department. It must be proved in this section that the idea is a sound one.

If the device is approved by the engineering committee, composed of six members, it is drawn up and blue prints are sent to the pattern or machine shop for making an experimental model.

This model goes to the Experimental Workshop for any finishing touches required and then passes to the testing floor—where it is put through duration and comparative tests.

After several conferences and changes the appliance is then ready for the A. G. A. specification and performance tests.

No appliance is permitted to be offered for sale unless it passes these requirements. For appliances which have not been considered by the A. G. A. as yet, the standards of the American Society of Mechanical Engineers or the American Society for Testing Materials are complied with.

After the appliance has passed all the laboratory tests it is set on the photographing floor and photographed.

It is then the subject of a conference by the committee representing the sales, advertising, engineering and production departments.

Field Tests

In most cases this is followed by an actual field test of six to eight months in the homes of competent employees.

The appliance is then ready for marketing—and is assigned to its place in the regular plant production.

This gives you some idea of the many stages of development and testing that a new gas appliance undergoes before being introduced to the industry.

It might also be mentioned that scores of difficult and unusual problems are being constantly submitted to this laboratory by gas companies, while exhaustive experiments and tests on new and improved appliances are in continuous operation.

House Heating as a Business*

Organizing a department in a small city

J. J. Winn, Jr.

Fall River Gas Works Co., Fall River, Mass.

FIVE years ago the number of New England gas companies having house heating installations on their lines could have been counted on the fingers of your hands and the serious writing that had been done on the subject could have been done on the back of a postage stamp with a shaving brush. House heating was not spoken of openly. It was something secret; set apart for the natural gas fields; and to be talked of with awe by manufacturing gas companies.

There are in New England no house heating engineers who have become bent and gray from years spent at their calling. The house heating field is new; it is comparatively unexplored; and yet today it is almost impossible to pick up an issue of a gas trade paper in which some phase of the subject is not treated.

Scope of Paper

Much has been written, and more has been said about the effect of the house heating load upon distribution systems, plant capacities, rates and revenues. This paper will not deal with these subjects. We will deal with the business of organizing a House Heating Department in a city of less than 200,000 people. There are in New England today not more

* Written for the N. E. A. of Gas Engineers Convention, February 24 and 25, 1926.

than 800 gas-fired house heating installations, scattered among 30-odd companies, and while very complete data has been gathered from these installations, it is still too early to base any very definite conclusions upon the amount of information at hand. One thing, however, is certain. Gas house heating has come to stay. The gas companies most favorably situated in regard to distribution systems and progressive executives are already requiring a distinct house heating load. The companies whose viewpoints are unfavorable to house heating will have house heating thrust upon them.

The Man

The first and most necessary acquisition is a man. An engineer is needed; but not just an engineer. The man part is by far the most important. It is not necessary that your house heating engineer be highly trained and very efficient in all engineering lines; in fact, it is necessary that he forget a good part of his training if he wishes to be a success. The man who does too much "co-efficient of thermal conductivity and B.t.u. loss per season" talk to his customers, or to the local heating trade, may inspire them with a feeling of awe for his marvelous brain power, but he does not sell house heating. If your man can adapt himself so that he will use the proper coefficients and make the necessary allowances in his own reports, and in talking to his trade, reduce his language to words of one syllable; if he is human, a good mixer, and willing to do 36 hours' work in every 24, he will sell all the house heating that your company will ever desire. With such a man available, the first installations should be hand picked.

Picking Initial Installations

At least two of the first year's installations should be in the homes of company officials. This is for several reasons. Data from these installations may be gathered under the most favorable conditions; experimental work may be carried on with the least inconvenience to your customers, and last, but not least, internal antagonism to the new business may be overcome.

We should next pick as house heating prospects a few of the best known local retail merchants, club men and manufacturing operators. These may be chosen from among the personal friends of your executives. There should be in this list (and it is rather difficult to avoid having at least one), a crank about whom the people of the town say, "If anything satisfies him, it is sure to be about perfect."

These boilers will probably have to be installed without expense to the consumer, with the understanding that if they are satisfactory to him, at the end of the first heating season, he will pay for them, and if he is not satisfied, the boiler will be removed and the basement left in the condition in which it was originally found. The consumer may be persuaded to pay for the gas used at the existing rate for the first season if your company so desires. On some of the first installations it will be found necessary to "twin in" the gas boilers with the old coal burning appliances; not because this is at all necessary, but in order that the consumer may feel perfectly sure that should unexpected eventualities occur, the coal boiler may reassume operation immediately.

Attaining Maximum Efficiency

It now becomes the duty of your engineer to see that these boilers operate at the highest possible efficiency, and that they give the least possible care to the consumer. For his own information, he should read the meters every morning and keep a careful check on the outside and inside temperatures, wind velocities and any unusual occurrence within the household which might affect the gas consumption. It may be necessary to make some piping changes to allow for the rapid firing of the gas-fired boilers, and in doing this he will do well to call on the local heating trade to do the work, in order that they may become acquainted with the new central heating plants.

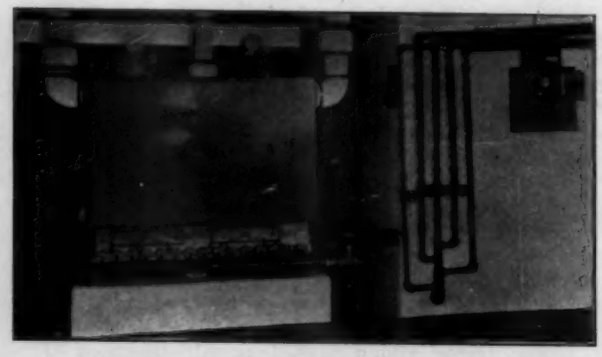
Small inconveniences are bound to occur during the first season. Thermostats will get out of adjustment and burners will back fire. It is here that it is possible for your engineer to make or break house heating in your city. If he is the proper type he will not only ask to be called, but he will be called at all hours of the day or night, and in no case should he reply, "I'll send someone up." All calls should be answered by him personally. It may be well to explain that my name is not on the call card shown in the appendix, due to the fact that my phone connection had not been made at the time the card was printed. It is not necessary that he should do the actual work himself, although in many cases the difficulty is simply a minor adjustment which he can readily fix. It is necessary, however, that he show to the customer that a house heating service and a real service is always available. He can, if he tries, make a personal friend and a first-class salesman out of each of his first year customers.

Merchandising House Heating

When the end of the first year has been reached, and a rate has been established, we are faced with the serious business of merchandising house heating. Let us stop for a moment to see what we are selling

A Fall River Cellar, Looking Away from the Gas Boiler

and what departments would be affected. We must remember that we are not in business to sell appliances. Our ultimate aim is the sale of gas and if we wish to sell gas through house heating we must sell it through service. It would hardly do to have service on a house heating installation interrupted for more than an hour on a cold winter day. Our jobbing men must be trained with this in view. When work is to be done on a house heating installation it cannot be put off until tomorrow. It must be done immediately, quietly and well. This applies to both the original installation and to the service work. If this idea can be put across to the jobbing crews; and it is part of the engineer's dut yto see that it is, it will improve the type of service rendered in all classes of jobbing work. The stock room will be affected as it will be necessary to carry a supply of parts for each type of appliance sold, in order that any repairs may be made with the least possible delay. For this reason it is not advisable for us to handle every make of central heating plant that is on the market. We should standardize on one or two makes which we know are well constructed and which will give efficient service. It will be necessary that the distribution department keep a careful pressure survey record in the sections of the city where the majority of the house heating is sold, in order that you may not be caught with poor pressure during the second or third year in your house heating business. Some mains may have to be increased, although in the majority of cities these increases will not be of sufficient moment to disturb us seriously.



A Fall River Boiler Installation (Indirect Steam)

Rebuilding Old Coal-Fired Equipment

May I inject a word of warning at this point? Do not attempt to put gas burners into existing coal-fired appliances. You will be told and, no doubt, have been told that this can be done and that good working efficiencies can be obtained. Undoubtedly this is true in some instances, but experience leads us to believe that more trouble can be caused and more sales resistance developed by one installation that goes wrong than may be overcome by thirty installations each operating perfectly and at least one out of three, where the burner is put into the existing equipment, will give unlimited trouble.

There is also the matter of the newly developed oil-gas burner. On this question it must be distinctly understood that the writer is expressing only his own personal feelings and that his remarks are in no way authorized by the company by which he is employed.

The Oil-Gas Burner

There can be no question that the use of a burner which would shift its fuel from gas to oil during the peak periods would give a load factor which would permit some companies to more readily arrive at a rate for house heating. On the other hand, no oil burner has yet been manufactured which will work well in all types of boilers and furnaces. We appreciate more and more that the biggest obstacle to the sale of oil for domestic heating is the fact that there is no developed service organization which will cover all territory in which oil is sold. Considering these two matters, we must decide whether or not we are going to sell and service oil burners, taking on at the same time the oil man's troubles. It would seem that the oil-gas burner is not a solution. It is simply begging the question. The solution must be the development of summer sales which will counterbalance the effect of the house heating load. Now let us return to our song.

Co-operation with Plumbers

In nearly every New England city with a population under 200,000 there is a fairly well organized local body known as a Master Plumbers Association. These men comprise the heating trade of the city and it is but natural that they will view the intrusion of the gas company into their chosen field with some apprehension. Probably seven out of ten of these men will be interested in the merchandising of some oil-burning appliance and they can be either the greatest help or the worst enemy of the local gas company. These men have already started the trend of public thought away from coal heating. Although man has given long and serious consideration to giving up a fuel that has been in constant use for a hundred years, it is only a short step from the comparatively new fuel, oil, to the more advanced fuel, gas. It is entirely possible that by hiring the proper type of men the gas company can make the complete installation of gas-fired central house heating plants without the assistance of the local heating contractors. This, however, is not always advisable. We must again remember that the consumer will not readily change his ideas as to where he should get his information in regard to the best method of heating his home. If the gas company chooses to make the entire installation without letting the heating contractor enter the field, there is nothing for the contractor to do but to put every effort into the sale of oil and coal burning appliances and to cry down the use of gas as a house heating agent. If, however, a policy of co-operation is adopted, the benefits obtained may be practically unlimited. You may call the plumbers together and say to them:

Work Together for Results

"We are in business to sell gas. You are in business to sell heating equipment. We have no intention of attempting to drive you from your field. We have every desire to co-operate with you. After gas house heating has become established, the time may come when it will be necessary for the company to employ a heating engineer only for consulting purposes. In the meantime, we would like to work with you to forward the sale of this equipment. We will allow you a liberal commission—not only on the boilers which you sell, but also on the boilers which we sell and which you install. We realize that you have been in the heating game for many years and that we are very new in this field. We need your help and you can be of immense assistance to us. We believe, in turn, we can materially increase your business. If you do not sell gas boilers, your business is necessarily limited to the sale of coal or oil burning equipment in newly erected buildings, the replacement of wornout equipment in existing structures, or the replacement of coal equipment with oil in existing installations. Remember, we are not selling a burner to go into an existing furnace or boiler. We are selling a new central heating plant. If you will enter the gas heating field with us, you will find that it will be possible for you to obtain work in places where no work might otherwise be needed for years to come. We will co-operate with you to the fullest extent, even selling the boiler during May and June at a lower price, in order that your usual summer slack season may become a rush."

The heating contractors as a rule are very quick to see the advantage of such co-operation, and the benefits do not end with the sale of gas heating appliances. The joint committee which may be appointed to establish installation practice for house heating may very readily be the opening wedge to a system of co-operation, covering the sale of all gas appliances in which plumbers or contractors may become interested.

Some Hidden Dangers

In closing, let us suggest a few of the hidden dangers which your engineer may encounter. Remember that the first people who will purchase heating from you will be those who are experiencing difficulty with other heating agents. In a number of cases the fault will lie in the piping system on hot water or steam jobs and in the warm air ducts on furnaces. No central heating plant will overcome these difficulties, and your engineer, with the co-operation of the heating contractor, should take every care to eradicate these troubles before the gas installation is made. This condition is particularly true of furnace heating. We do not believe that one-tenth of the houses in New England having furnaces are equipped with warm air ducts of sufficient size. The cold air intake of a warm air furnace should be taken from inside the house when gas is installed, and it is particularly necessary that the free area of the intake be equal to the combined free area of all the outlets. This must be taken care of, even if it becomes necessary to install two or more cold air return ducts in different parts of the house.

If the radiator valves on steam jobs are not working properly it will be impossible for the gas boiler to rid the piping system of air as rapidly as it should and the efficiency of the installation will be correspondingly lowered. The more advanced companies are all insisting that the pitch of piping be corrected and that vacuum valves be installed wherever they take over a steam installation.

Effectiveness of Radiators

Due to the rapidity of circulation on hot water installations, gas fired, it has often been found that radiators which heated perfectly with the slow heat generation of coal equipment are short circuited when the gas heater is installed. For this reason it is necessary that the piping be inspected and that all care be exercised to prevent the use of risers which are taken off the mains at right angles without a corresponding reduction in the main size. These corrections may seem unnecessary to the house owner, but his objections will be tempered when the recommendations are made by a representative of the gas company, as the gas company does not do this work. Recommendations made by a disinterested party are more often accepted for their full value.

Some very interesting work has been done by boiler manufacturers in regard to the partial load operation of steam boilers and from their work it would seem that higher efficiencies may be obtained by shutting off one or two burners during the spring and fall seasons, in order that the firing of the boiler may be more continuous.

✿ ✿ ✿ ✿ ✿ ✿ ✿

SCARLET GAS TANK WITH 140-FOOT ARROW ON TOP GUIDES AIRMEN'S FLIGHT

A huge gas tank recently erected near the Ford flying field outside of Detroit serves as a guide and beacon for aviators.

This gas holder, which has a capacity of three million cubic feet, is of a new type, known as a "waterless holder," says the Pennsylvania Public Service Information Committee. It is of a uniform height and does not move up or down according to the amount of gas it contains. It is said to be the third of this type erected in the United States.

When the big tank was finished, it was suggested that it be painted a bright color instead of the neutral gray that had been planned. It was also suggested that a white arrow be painted across the top pointing toward the landing field.

Accordingly, the tank was painted a bright red and across the top was painted a white arrow 140 feet long for the direction of mail fliers and other aviators. This arrow can also be lighted at night by flood lights which serve as a direction guide for night fliers.

Both the bright red tank and its white arrow are visible to aviators for many miles.

GAS MERCHANDISING

Domestic – Industrial

Ideas for the Man Who Sells

William H. Matlack

U. G. I. HAS PREMIUM SALE

DIRECT mail was employed in connection with the U. G. I.'s special sale, conducted during December, and a whole meal cooking set was given free with each range of a certain type and number purchased. This sale opened on December 3 and closed on the 19th and during that time 324 Philadelphia home managers "were made happy," to use the words of the old medicine man. The

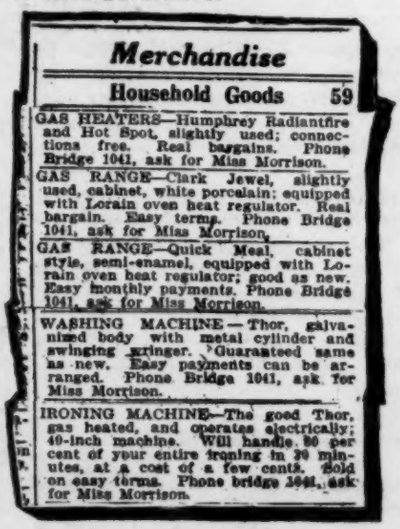
Not a Penny Added to the Price of this Fine Range
Free
with every
ORIOLE
GAS RANGE
SPECIAL XMAS SALE
Don't let money hold you back. Take a year to pay
Get This Whole Meal Aluminum Cooking Set Free!
THESE DATES
December 3rd to 19th
FOUR ORIOLE FEATURES!
Remember you need only pay a small amount down and the balance in easy monthly installments extending over a whole year.
THE UNITED GAS IMPROVEMENT COMPANY

broadside used in Philadelphia is an unusual one, as may be seen from the reproduction on this page, as no price of the range was given and no mention was made of the terms or down payment. That the sales went over big may be attributed largely to the fact that all during the sale Mrs. Skelton conducted demonstrations on the special range and that an attractive broadside was mailed to all prospective customers.

YOU MIGHT TRY THIS

NOT long ago, as the story goes, a certain gas man conducted a sale of used gas appliances. He advertised the appliances he wished to sell in big page advertisements. Yet some of the items did not move as rapidly as he thought they would and should, considering the condition they were in and the very low prices he had placed upon them.

"What is the trouble?" he asked the writer. "Why don't those appliances sell? We have an attractive advertisement; it brings folks into the store, but they do not purchase the used appliances we have advertised."



Merchandise

Household Goods 59

GAS HEATERS—Humphrey Radiantfire and Hot Spot, slightly used; connections free. Real bargains. Phone Bridge 1041, ask for Miss Morrison.

GAS RANGE—Clark Jewel, slightly used, cabinet, white porcelain; equipped with Lorain oven heat regulator. Real bargain. Easy terms. Phone Bridge 1041, ask for Miss Morrison.

GAS RANGE—Quick Meal, cabinet style, semi-enamel, equipped with Lorain oven heat regulator; good as new. Easy monthly payments. Phone Bridge 1041, ask for Miss Morrison.

WASHING MACHINE—Thor, galvanized body with metal cylinder and swinging wringer. Guaranteed same as new. Easy payments can be arranged. Phone Bridge 1041, ask for Miss Morrison.

IRONING MACHINE—The good Thor, gas heated, and operates electrically; 40-inch machine. Will handle 30 per cent of your entire ironing in 30 minutes, at a cost of a few cents. Sold on easy terms. Phone bridge 1041, ask for Miss Morrison.

Thinking the matter over a bit and taking into consideration season, local business conditions, etc., we said: "Well, it must be this: You have never before offered the citizens of this city any second-hand appliances through display advertising. Folks here think of your store as the place to purchase only what is new and up-to-date in gas appliances. When they want a used gas range, washer, ironer or water heater, they go to the dealers who have second-hand merchandise or they buy used appliances that they see advertised in the want ad. section of the daily papers. Our suggestion is that you advertise your appliances in the classified section of the daily paper and check your results."

Accordingly, the ads. reproduced here were used and the results were very gratifying, so much so that some of the items were sold out in the day following the appearance of the ads. This man's experience may be profitable to some of the readers of this section. If you have some used appliances, try the classified section and, like this man, use the name of some floor salesman rather than the name of your company.

As The Journal Views It

A. G. A. INSTITUTES OPERATING SERVICE BUREAU

It has been announced that the American Gas Association has instituted an operating service bureau service, through the Carbonization Committee of the Technical Section. The purpose of the Bureau is to render available to all those who want it the help of men with wide experience in the operation of all types of plants. It is the intention of the Bureau to serve all those who apply for service and to give them all the assistance possible in solving their difficult problems.

The Bureau and its work are highly commendatory and really characteristic of the entire character of the American Gas Association and the industry that supports it. It shows clearly that gas men are a part of a real gas fraternity, the members of which are anxious at all times to help each other. It indicates that there exists among American gas men, a spirit of co-operation and mutual helpfulness which is to be highly commended in every way.

It is only by such unselfish motives on the part of the gas man who has some information that another wants, to help his fellow, that real progress has been made in our industry. In fact, this applies to any industry. As long as the members of an industry remain individuals without any other but selfish interests the industry as a whole does not progress. There are many examples of such cases to be found in American industrial life. Eventually, these have become increasingly fewer in recent years. Today our country is made up of industries in which associations exist, which are imbued with that spirit of helpfulness and co-operation which has been in no small part responsible for the great commercial progress of our country.

It is, indeed, interesting to compare the relations between gas men in foreign countries with those in our own country. Such a comparison will show that nowhere is there such a cordial feeling between members of an industry as in our own and that the work that our gas men do in conjunction with their fellows to solve problems and to render available to all valuable information, redounds to the credit of the entire industry and has been a potent factor in its great development. It is by such continued co-operation that the gas industry of America will continue to grow and eventually will reach the goal that it has set for itself.

GAS SECURITIES FOR SAVINGS BANKS

It has long been recognized that securities of public utilities, and particularly of gas companies, are so safe and so certain of a constant return that they can meet all the stringent requirements that the law places upon investments made by savings banks. Accordingly, it is of interest to learn that a bill has been introduced into the Legislature of the State of New York authorizing savings banks to invest their funds, under certain conditions, in gas company bonds.

This is an important step in gas company financing and is all the more interesting and significant in that the Association of Savings Banks in New York State was the instigator of this bill and in actuality prepared it. It shows unequivocably the high regard that these custodians of the people's money have for the gas utilities, and this fact, namely, that they see fit to place money that they have in trust for their depositors in gas company bonds, should be of material aid in customer ownership campaigns.

It is also interesting to note that a study has been made of the risk of receivership per annum per $100 of securities of various enterprises in the country and that this investigation shows that the risk in the case of industrials is $2.07, that in the case of railroads it is $1.84, while that in the case of public utilities it is only $0.37. It is to be emphasized that the last figure is five cents above that for the case of national banks.

It would, therefore, appear that the implied recommendations that are contained in these facts should be taken advantage of by those companies who are conducting customer ownership campaigns. This is a movement which is important from so many angles that it may well be held that it stands head and shoulders above all other developments in the utility field, as far as effect on the future prog-

ress of these enterprises is concerned. The extent to which this movement has grown can be readily recognized from the following: It has been brought to our attention that during the year 1925 one billion and a half dollars worth of new money was raised by public utility companies and the average for the past four years of corporate financing was $112,000 an hour. It is well to remember that this figure means that public utility financing for 1925 was more than that of the railroad, copper, iron, coal, automobile, oil, rubber and shipping companies combined.

Gas in the Automobile Repair Shop

A portable forge easily moved to any place in the shop

Charles W. Geiger

A PORTABLE forge has been built by the repair shop of the Chandler-Cleveland Motor Car Company in San Francisco. This is carried on four sets of casters, by means of which it can be taken to the job, instead of bringing the job to it, thus saving much time. At one end of the forge there is a preheating unit operated by gas and compressed air, long rubber hose being provided so that it can quickly be cut in again in the new location when the forge is moved. In the center of the forge is a water tank for cooling metal as it is taken from the forge. This tank occupies the other end of the portable affair. The forge is connected with the compressed air line by means of a rubber hose, which can be quickly disconnected and quickly connected up again when the forge is moved to its new location. Compressed air and gas connections are provided at various places in the shop for use in the forge at various locations.

HEAT TRANSFER AND EVAPORATION

The above is the title of a book published by the Chemical Catalog Co., New York City, which is written by W. L. Badger, professor of chemical engineering in the University of Michigan.

The book is a very careful and comprehensive study of the principles and practice of heat transfer and evaporation and in the opening chapters, the General Theory of Heat Transmission by Conduction and Radiation, are described in considerable detail. The author makes free use of mathematics and calculus in the derivation of formulae in the application of the laws of heat transmission. Illustrations and curves are given showing in graphical form the applications of various laws of heat transmission. Particularly interesting are the chapters on Heat Transfer by Convection. These are followed by descriptions of Heat Transfer between Solids and Gas, between Solids and Liquids and between Solids and Condensing Vapors. In the latter case, particular attention is given to steam.

After this preliminary description of fundamental principles, the writer goes into considerable detail on the design of heaters. This is followed by a general description of the various types of evaporators employed in industry. The subject of heat transfer in evaporators is also given particular attention.

In another chapter there is described the Theory and Calculations for Multiple-Effect Evaporators, which is followed by a description of the operation of such evaporators. In the latter, such subjects of foam and entrainment, removal of solids and of condensate, removal and prevention of scale formation, are discussed. Attention is also paid to the auxiliary apparatus used with evaporators such as condensers and vacuum pumps.

In the latter part of the book there is described application of evaporators to specific industries such as sugar manufacture, salt manufacture, distilled water, waste liquors from pulp and paper mills, and the like. The question of costs is also taken up and formulae are developed for the economical cycle.

In an appendix there are given formulae on the flow of fluids as well as on test code for evaporating apparatus. A patent index is also included.

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 110

Combustion

Composition of Coal

Coal is such an important substance from all standpoints that it is felt that the industrial engineer who studies these Lessons may well spend some time on the subject of the composition of coal. It has been mentioned above that coal is of vegetable origin and was produced by the combined action of heat and pressure resulting in a decomposition of the vegetable substances in the absence of sufficient air to effect their complete combustion. This resulted in a mass which we now call coal and which, it is easy to understand, will contain a variety of substances in varying proportions, depending upon the conditions under which the original decomposition took place. Thus, when an analysis of coal is made, it will be found that practically no two coals will give the same results. This variation in the composition of coal is what makes it so difficult to classify the coal and to recommend them for certain definite purposes.

Ultimate and Proximate Analysis

It has also been mentioned above that there are two general methods used in determining the composition of coal. One is called ultimate analysis and the other is called proximate analysis. Ultimate analysis simply consists of analyzing the coal to determine the percentages of ultimate constituents such as hydrogen, oxygen, sulphur, nitrogen and ash. The analysis is generally made on a sample of the dry coal. As a general rule carbon, hydrogen and nitrogen are determined by the regular methods of quantitative analysis. Sulphur is found by a separate method. The amount of oxygen in coal is always found by difference after adding up all the percentages of all the other ingredients and then subtracting them from 100.

The proximate analysis of coal consists of the determination of moisture, volatile matter, fixed carbon, ash and sulphur. It is a much easier and quicker method to carry out than ultimate analysis. Thus, for example, the percentage of moisture in the coal can be determined by heating small samples in a crucible for a definite period of time, namely, seven minutes, at a temperature of 1740 degrees F. The operation is carried out in a closed crucible. Then the percentage of volatile matter is the difference between the original weight of the coal and its weight after heating minus the percentage of moisture found in it. The ash is then determined on the dry sample by heating the coal until all the combustible matter has been burned off. The percentage of fixed carbon is found by adding all the other figures together and subtracting from 100.

Variation in figures showing the approximate and ultimate analysis of coals is indicated in the following tabulation:

	Ultimate Analysis %
Carbon	50 -95
Hydrogen	2 - 5.5
Oxygen	2 -40
Sulphur	0.5- 7.0
Nitrogen	0.5- 3.0
Ash	2.0-30.0
Fixed carbon	16 -93
Volatile matter	3 -50
Moisture	3 -50
Ash	2 -30

What The Young Bride Should Know:
The young woman of 18 contemplating matrimony if she lives a happy married life to the age of 65 years (and many live to be 75 in happy companionship) should face the fact that, accepting a partnership with the man she loves, there lies before her the preparation of 51,465 meals. That means 51,465 arm loads of wood or 51,465 hods of coal and 51,465 buckets of ashes to be removed unless she uses Good Gas for cooking. By insisting that hubby shall furnish her with a Tappan heat control range, think of the labor saved! She will keep her youth and her beauty longer and she will serve better meals if she has Good Gas at her disposal. Think it over!
(To be continued in our next)
1
WINCHESTER GAS COMPANY
WIFELY RESPONSIBILITY: 5
No matter what the pessimist may say, the American Home is still and always will be the firm foundation of the Nation, the altar of our National hopes. In it the Wife is the titular Diety. She is worshipped of right by husband and children. But with the Throne of her Sovereignty goes certain responsibilities. Those responsibilities must and should make her the Dictator in the house. If she is to cook or to supervise the cooking of 51465 meals during the term of her wifehood, that duty gives her the right, nay the duty, to demand the best that modern science can give as a Kitchen aid. Good Gas is a servant that never balks. A Tappan Range heat controlled is the cash register of Kitchen economics. Think it over.
(To be continued in our next)
WINCHESTER GAS
What the Young Bridegroom Should Know:
That he is starting on a long voyage with the woman who is to be First Mate of the ship of which he is Captain. That to maintain the cooperative endeavor of the First Mate he must furnish the ship with its proper gear. No First Mate would ever put to sea in a bark not properly provided with gear. No Captain could steer a bark safely without a First Mate and proper equipment. If you want your ship to sail the matrimonial sea in perfect safety supply the First Mate with everything needful for a safe voyage. A Good Gas Equipped home is the best guarantee against a domestic wreck. See to it now, Captain, and avaid the shoals. Think it over!
2
(To be continued in our next)
WINCHESTER
What The Young Father Should Know:
That the bride of last year is the young mother of this year and that babies have rights beyond those of the father. Sterilized milk warmed on a Good Gas Range is essential to carry them through the critical periods of infancy. That much hot water is needed daily. If you want a house full of youngsters (and most men do) the prospective mother of them is entitled to every means that modern science can devise to protect and nourish them. No home subject to constant changes of temperature is safe for infants. Infant mortality has been reduced 50 per cent since gas appliances have been installed in homes. Hot baths plenty of hot water and constant uniform heat are requisite for the preservation of the life of infants. Think it over!
(To be continued in our next)
6
ER GAS COMPANY
What The Young Bride Expects:
Young man! If you have grown to that estate where you feel competent to ask some beloved young woman to share your life, you should find out what she expects of you. In exchange for the love, companionship and care of your home which you expect from her, what does she expect from you? She has the right to expect that the home you give her shall be equipped with all those modern labor saving conveniences that other women have. That the typewriting machine at your office shall be matched by a Good Gas range in her kitchen. That your adding machine shall be duplicated by a vacuum sweeper; and your auto by a Gas Water Heater. If she is to prepare 51,465 meals for you, in order to make them healthful, palatable and digestible she must have a Tappan heat controlled range. Think it over!
(To be continued in our next)
3
ESTER GAS COMPANY
What The Growing Child Needs (No. 1)
Warmth, cleanliness and comfort, as well as education, for those mean healthy bodies and healthy bodies mean sound minds. Good meals thoroughly and well-cooked as meals only can be cooked with Good Gas on a Good Gas Range. Not the soggy indigestible kind resulting from slow fires and fires that go out unless constantly tended. Mother's many duties make it impossible for her to stay in the kitchen all the time. And in consequence much good food is spoiled. With the heat-controlled Tappan Range she can go about her other duties certain that the cooking will proceed to a finish without further attention. And the little folks will have hot food ready when they need it. Think it over!
7
(To be continued in our next)
WINCHESTER
What The Young Mother Should Know:
With the coming of the babies the young mother faces new responsibilities. The little bodies must be kept clean and warm if healthy childhood is to blossom into sound youth. Plenty of hot water must be constantly on tap. You can't have it with wood and coal stoves. The old fashion of a Saturday night bath in the kitchen with a tea-kettle to moderate the temperature of the water was the cause of much illness. Today with Good Gas and storage heaters like the Premier hot water at moderate cost may be had for the turning of a tap. The saving in doctor's bills alone will pay for all the equipment and all the gas consumed and happier homes and healthier childhood will follow. Think it over!
4
(To be continued in our next)
WINCHESTER GA
What The Growing Child Needs (No. 2)
Hot baths in a warm bath room are essential to childhood. You can have that with Good Gas and a Premier water heater and a wall heater to take the chill off the room. A wall gas heater, set into the bathroom wall will bring the temperature up almost instantly to a comfortable degree. You don't have to keep up a constant heat in the bath room. Light the heater only when you need to use the bath room. Coughs, colds, bronchitis, croup and the thousand and one ills of childhood can be avoided by the careful mother who uses Good Gas equipment in the home. Think it over.
(To be continued in our next)
8
ER GAS COMPANY
KITCHEN STATESMANSHIP.
It used to be said that "the hand that Rocks the Cradle rules the World" but the modern version is the "Kitchen Statesman is the Maker of Political Destinies". Remember that wives and prospective wives! You have it in your power to sway the destinies of the world. How? If the way to a man's heart is through his stomach then all you have to do is to keep him properly fed in order to make him do your bidding in politics, in business and in the home. But in order to do that you must have proper kitchen equipment. Whether you do the cooking yourself or hire a cook a Good Gas range is essential to Good Cooking. Now that you have a place in politics the place to initiate your statesmanship is in the Kitchen, an dthe best way to demonstrate your capacity as a statesman is to make a home comfortable and convenient for yourself as well as for papa. Think it over.
9
(To be continued in our next)
WINCHESTER GAS COMPANY

Nine of a Series Comprising Seventeen Advertisements, Inserted in the Local Papers by the Winchester Gas Company, Winchester, Va.

The Entire Series Carries the Idea of Married Life Through All Its Mutations and Vicissitudes and Tells How Good Gas Service Tends to Lighten the Cares and Burdens of the Household

PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

BUREAU OF MINES ORSAT APPARATUS

TECHNICAL paper No. 320, published by the Bureau of Mines, describes the Bureau of Mines Orsat Apparatus, which is used for gas analysis.

This paper not only discusses the use of this apparatus, but also reviews the various factors that may affect the analysis of gas in an analyzing apparatus. Details are also given of the methods used in preparation of the various reagents employed in making the analysis.

The accompanying figure shows the details of the apparatus.

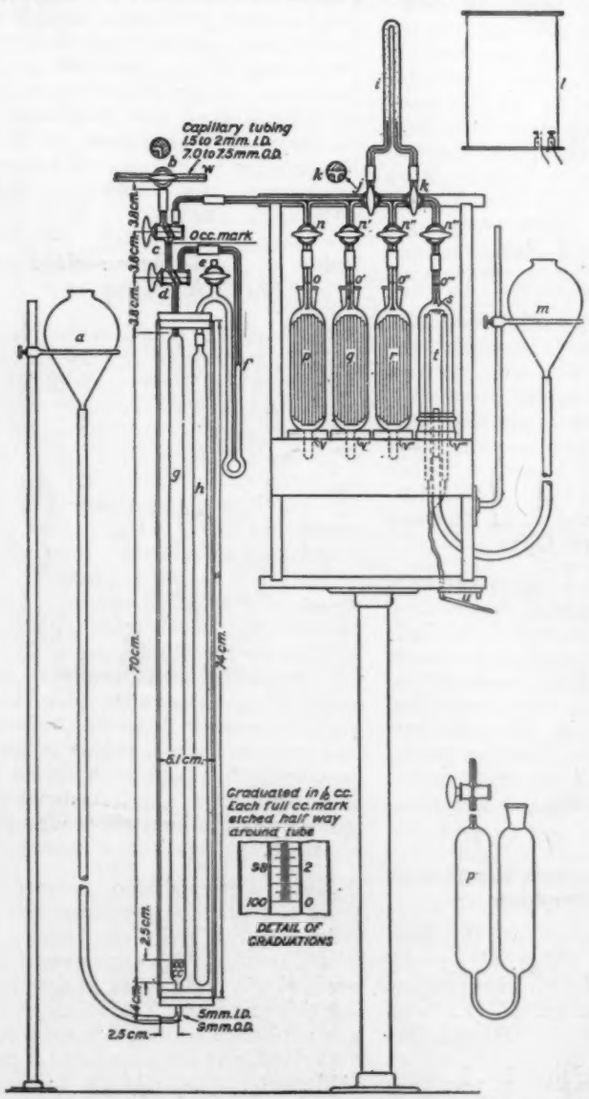
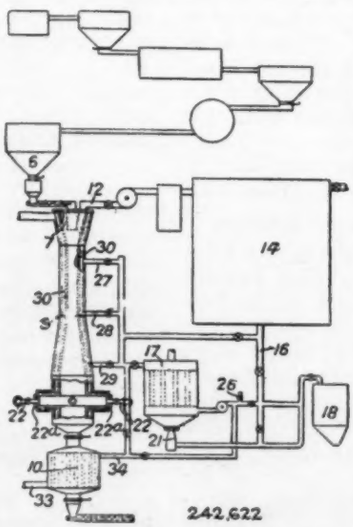


FIGURE 1.—Details of apparatus. Front view: *a*, Leveling bulb; *b*, three-way L bore cock; *c* and *d*, three-way parallel bore cocks; *e*, two-way cock; *f*, mercury or oil mark; *g*, burette; *h*, Pettersson compensating tube; *i*, copper oxide tube; *j* and *k*, stopcocks; *l*, electric furnace for copper oxide tube; *m*, mercury bulb; *n*, *n'*, *n''*, and *n'''*, cocks; *o*, *o'*, and *o''*, reagent marks; *o'''*, mercury mark; *p*, pipette to remove CO_2; *q*, pipette to remove illuminants; *r*, pipette to remove O_2; *s*, ends of platinum coil; *t*, pipette to determine CH_4 and C_2H_6; *u*, switch; *v*, *v'*, *v''*, and *v'''*, supports for pipettes

GAS FROM POWDERED COAL

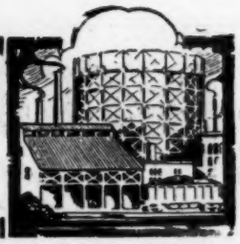
THE pulverized coal passes downward through hot gas which varies in temperature from 850 degrees to 1,175 degrees F. The gas is obtained by burning part of the fuel, or a combustible gas, at the bottom of the retort in a limited supply of air. The powdered coal passes through a hopper 6 and distributor 7 to the retort 9, and the carbonized residue passes to a cooler 10. The gas and vapor pass through a pipe 12 to a gas holder 14. The hot gas introduced at the bottom of the retort 9 may be drawn from the holder 14 through pipe 16 and heat interchanger 17, or it may be drawn from a gas producer 18. The heat interchanger may be heated by the burner 21, and air only may be drawn through it from the pipe 26. Combustible gas may be introduced into the jacket 30 and burned there, and the air supply may be preheated by passing it through the coke cooler 10.—British Patent No. 242,622.



PURIFICATION OF GAS

THE improved process of purifying fuel gases which comprises subjecting the fuel gases to the action of contact materials, adapted to secure the partial oxidation of the hydrogen sulphide under conditions of temperature and humidity which will insure that the free sulphur formed shall be carried forward from the contact material and that the latter maintains its activity and utilizing ammonia to enable the removal of sulphur dioxide present in the gas after partial oxidation of the hydrogen sulphide to be effected by condensation and washing operations, the ammonia content of the fuel gases being adjusted to insure that under the conditions in which the treatment with the contact material and the further treatment of the gas is carried out, the acidic oxygen containing sulphur compounds may be effectively removed.—U. S. Patent No. 1,571,624.

NEWS OF THE GAS INDUSTRY



New England Gas Association Formed in Boston

Engineers, Salesmen and Industrial Men Disband Individual Organizations—Gas Engineers Meet

The annual meeting of the New England Association of Gas Engineers was called to order at 10 a. m., Wednesday morning, by President Cheney, in the Somerset Hotel, Boston, Mass.

After various business, report of directors, election of new members, reports of the secretary and of the treasurer and reading of the list of deceased members, the meeting had the pleasure of listening to an address by President H. N. Cheney, of Boston, Mass.

President Cheney's Address

In opening his address, Mr. Cheney said that, while there has not been any great growth in the New England gas industry during the past year, the outlook is not at all discouraging, and there has been a constant increase in gas use. While the industrial depression in New England has had its effect in retarding the increase in sales of industrial gas, nevertheless, indications now are of greater development along these lines. There has been continued loss of lighting load in spite of the fact that gas is the best lighting medium from many standpoints. On the other hand, gas consumption for cooking has increased, and this is also true of the use of gas for house heating. The latter load should not be feared by the gas industry as long as the rates charged remain adequate. Mr. Cheney said that house heating business will come to the gas companies, even if they do not want it, and that it would be more advisable for the gas industry to go after this business, so that it can be secured under the best possible conditions.

Advocates Consolidation of Associations

Mr. Cheney discussed the growth of the New England Association of Gas Engineers from the time that it was truly representative of the entire gas industry in New England. Then, as the interests of the gas men became more diversified, other associations were formed. At the present time there are three New England gas associations and they all function separately. There is no unity and there is often duplication of effort. There is now no one association in New England which is truly representative of the entire New England gas industry. The proposal to organize one association to take care of the interests of all gas men in New England is now under consideration. Mr. Cheney indicated that this movement had his entire approval.

N. W. Gifford and J. L. Tudbury Receive Gifts

N. W. Gifford, former secretary of the New England Association of Gas Engineers, and J. L. Tudbury, present secretary, were then honored by the members of the association, who presented each with a gift in token of their appreciation of their services. Mr. Tudbury will resign as secretary with the close of the present convention.

C. E. Paige Discusses the Orange Star Campaign

The next speaker on the program was C. E. Paige, vice-president of the Brooklyn Union Gas Company, Brooklyn, N. Y., who spoke on "Sales—A National Gas Problem." In his paper, which was published in full in the February 27th issue of The American Gas Journal, he discussed the importance of this movement to the entire gas industry. He called special attention to the value of the comprehensive plan, devised by the Commercial Section of the American Gas Association, to increase sales of gas and gas appliances. Mr. Cheney indicated that he was heartily in favor of this plan and that it is one that calls for the co-operation of all gas men. It is a plan that has been carefully prepared and, if all co-operate, and do their share in promoting it, success will eventually be attained. It was also mentioned that the first step in the campaign has been made in the institution of an architects' contest and that results are even now apparent.

Value of Trade Associations and A. G. A. Activities

The meeting then had the pleasure of listening to Major Alexander Forward, secretary-manager of the American Gas Association, who spoke in part on the value of trade associations, of unity in association organization and also on some of the more important activities of the American Gas Association. In talking of the value of having a single association, instead of several co-existent associations, he quoted from an article written by Mr. Blomquist, a Swedish engineer, who visited this country recently and who compared the work done by the various individual associations in England with that done in America by the American Gas Association. The value of unified effort was emphasized.

Major Forward also commented upon the various important develments in the gas field, such as house heating. He emphasized the need of adequate rates in developing this gas load. The work of the gas appliance testing laboratory in Cleveland was discussed and it was said that the laboratory has now completed the standardization of tests on flexible gas tubing and was now ready to take up the matter of gas range testing. The co-

operation of all gas men in furthering the work of the laboratory was called for.

President of City Council Welcomes Gas Men

In the forced absence of the Mayor of Boston, Mr. Keene, president of the City Council, addressed the meeting, welcoming the New England gas men to the city, and in the course of his talk he emphasized the need of regular inspection of gas appliances.

A short report was then read regarding the scope of the work of the Accounting Section of the American Gas Association, in which attention was called to the great diversity of accounting subjects, of interest to all gas men, to be read at the A. G. A. convention this coming October.

The Educational Committee presented a report in which the work being done at the Massachusetts Institute of Technology was reviewed. There are now 39 men taking the course.

Use of Exhaust Steam

The final paper of the morning meeting was read by R. E. Kruger, Rochester Gas and Electric Corporation, of Rochester, N. Y. The subject was the "Use of Low Pressure Steam in the Gas Plant." In this paper the use of such steam was indicated for heating buildings, boiler feed water, in ammonia stills, in liquid purification, heating gas holders, in water gas sets and producer gas installations. This paper was then very fully discussed.

Salesman or Merchant

The formal paper in the afternoon meeting was read by Prof. Philip Cabot, of the Harvard School of Business Administration. Prof. Cabot discussed the essential difference between the salesman and merchant and emphasized the distinguishing feature of broad vision that characterizes the merchant. Prof. Cabot gave a very interesting description of what he considered was the position of the so-called gas monopoly today. He discussed the danger of non-competitive business and said that he did not characterize the gas industry as being a monopolized business. He brought out the fact that gas must compete with coal, oil and electricity and emphasized the necessity for developing the industrial field.

Washing Out Naphthalene

The next subject for discussion was, "What Has Been the Experience of Various Plants in Washing Naphthalene Out of City Gas." This subject was discussed from the following standpoints: The kind and size of washer, the kind and quantity of oil used and the loss in heating value of gas by reason of washing.

Considerable discussion of this subject was led by Dr. C. R. Lunn New York and by Mr. E. H. Bird of the Koppers Company.

The second subject for discussion was "What Is the Best Meter to Meter High Pressure Gas With?" This subject, which is one of the most interesting and important of technical developments in the gas industry, was fully discussed, many gas engineers taking part in the discussion.

Dinner, Entertainment and Dance

At 7 o'clock on Wednesday evening the New England gas engineers, their ladies and guests, sat down to a dinner which was interspersed with entertainment and talks, and which was thereafter followed by an entertainment and dance.

Thursday Meetings

The first business of the Thursday morning meeting was the report of the committee on the president's address, presented by Chairman Barnes. Mr. Barnes commended President Cheney for his optimism and also indicated the approval of the committee on the proposed amalgamation of the New England gas associations.

The meeting then became a joint meeting of the New England Association of Gas Engineers, the Gas Sales Association of New England and the Industrial Gas Association of New England. W. A. Deering then read the report of the joint committee on consolidation. Mr. Deering went into detail on the finances of the association and stated that at the present time it was not proposed to elect a paid secretary and to open a permanent office. He said that a considerable part of the New England Gas Association had agreed to subscribe to the new association, thus rendering its financial success assured.

William Gould, chairman of the publicity committee, reported on a new publication entitled "Every Day," proposed to be published by the new association, a copy of which was distributed at the meeting. This publication is for distribution among the domestic customers of the gas company. Whether or not this paper will be continued as an activity of the new association will be determined during the year.

Gas Men Vote on New Association

The joint meeting then was dissolved and a meeting of the Industrial Gas Association of New England was called. L. B. Crossman took the chair and after a few introductory remarks asked for a vote on certain amendments to the constitution of the Industrial Gas Association which would have the effect of merging that organization with the other New England gas associations to form the New England Gas Association. The vote was unanimous.

This vote was followed by a report from J. J. Quinn, of the Gas Sales Association of New England, who said that his association had voted to join the others in their amalgamation.

The meeting was then turned over to the New England Association of Gas Engineers, who likewise voted unanimously to join the New England Gas Association.

Thus the three separate gas associations united to form the New England Gas Association, each, nevertheless, continuing their identity as divisions of the combined organization, namely, the operating, sales and industrial divisions.

Operating Division Elects Officers

Before the meeting of the new Operating Division of the New England Gas Association was turned over to the New England Gas Association, J. A. Norcross of New Haven, Conn., chairman of the nominating committee, reported the following nominations: For president of the Operating Division, A. S. Smith, of Concord, N. H.; for vice-president, G. W. Stiles, Portland, Me.; for secretary-treasurer, F. E. Drake, Lynn,

Mass.; for directors, A. H. Scott of New Britain, Conn., H. Vittinghoff of Boston, Mass., and I. T. Haddock of Cambridge, Mass. All were elected unanimously.

F. C. Freeman Elected First President of the New England Gas Association

The meeting then became a meeting of the entire New England Gas Association and the first business was the report of the chairman of the Nominating Committee, W. A. Deering. The nominations were as follows: For president of the New England Gas Association, F. C. Freeman, of Providence, R. I.; for vice-presidents, William Gould of Boston, Mass., and J. A. Norcross of New Haven, Conn.; for treasurer, F. D. Cadwallader of Boston, Mass.; for directors, J. J. Quinn of Quincy, Mass., and H. N. Cheney of Boston, Mass.

Mr. Freeman was then called upon for a talk and asked for the co-operation of all to make the new association a success. He emphasized the importance of choosing a paid secretary-manager of the association. He said his one aim, in which he requested the assistance of all New England gas men, would be to work for the greatest possible progress of the New England gas industry.

House Heating

The next item on the program was a paper on "House Heating as a Business," which was read by John J. Winn, Jr., of Fall River Mass. This was a contribution of the Industrial Division of the new association. In this paper Mr. Winn dealt mainly with the organizing of a house heating department in a city of less than 200,000 people. He went into detail on many phases of this subject and his paper contained much valuable data on gas consumption for heating various houses, steam required, types of reports, as well as a method of figuring average gas requirements for definite jobs.

Detarring Gas

In the afternoon meeting a paper was delivered as a contribution of the Operation Division of the New England Gas Association by N. W. Sultzer of New York. The subject of this paper was, "Progress Made in the Detarring of Artificial Gas with the Cottrell Electrical Precipitation Equipment." In this paper a detailed discussion was given of the results obtained by this process of tar removal and attention was called to the advantages of this system of detarring gas.

Other subjects discussed at the meetings on Thursday were rates for house heating, use of soft coal in water gas sets and what has been the experience with combination cement and lead joints.

Western United Gas Co. Files Largest Mortgage

Benton, Ill.—The second largest mortgage ever to be filed in Franklin county is on record here in the $22,500,000 mortgage on the Western Utilities Gas and Electric Company.

The company recently took over the Southern Illinois Gas Company.

Properties in 13 counties, including offices in West Frankfort, Benton, Johnson City, Energy, Crainville, Murphysboro, Ava, Carbondale and Duquoin, are given as security. The document contained 65,000 words.

Southern Gas Men to Meet in New Orleans

The following is the program of the Southern Gas Association, 18th annual meeting, which will be held in New Orleans, La., March 15-17, inclusive:

Monday, March 15, 1926

9:00-9:30—Opening remarks by President S. E. Linton.

9:30-10:00—Address by Mr. H. C. Abell, president American Gas Association.

10:00-10:45—Paper by Mr. H. C. Gross, "Modernizing the Small Gas Works."

10:45-12:00—Symposium on Information Bureaus: "The Information Bureau, Its Origin, Purpose and Need in Our Industry"; "Does the Information Bureau Movement Benefit the Small Utility?", Channing Cope; "How the Utilities Can Better Co-operate with the Bureaus," H. M. Blain; discussion.

Tuesday, March 16

9:00-9:10—Report of secretary-treasurer, Mr. J. P. Connolly.

9:10-10:10—Symposium on Gas Water Heaters: "How, When and Where to Sell Small Circulating Water Heaters," E. D. Brewer; "How, When and Where to Sell Automatic Storage Water Heaters," H. J. Long; "How, When and Where to Sell Automatic Instantaneous Water Heaters," C. I. Baker; discussion.

10:10-10:30 — "Water Heater Sales and Possibilities," J. W. Riser.

10:30-11:30 — "Selling Appliances," Wm. F. Eve, Jr.

11:00-11:40—"Getting the Most Out of the Territory Served," Gordon King.

Discussion.

11:40-12:00—"Home Service and Its Effect on Our Future Business," Mrs. S. R. Dull.

Wednesday, March 17

9:00-9:30—"Advertising," Herman A. Groth.

9:30-10:00—"Rehabilitating the Small Gas Company," Sam Brown.

10:00-10:45—Report by E. L. Rieha on "Johns Hopkins School on Gas Engineering."

10:45-11:30—Address, "Making Friends," Mr. P. S. Arkwright.

11:30-12:00—Reports of committees on "Memorials and Resolutions," "Auditing," "Nominations" and "Time and Place."

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Bangor Gas Co. Elects Officers

At a recent meeting of the stockholders of Bangor Gas Company, the following officers were elected: S. B. Thompson, vice-president, secretary and treasurer; W. R. Jordan, president, with the same officers as directors, with the addition of H. W. Thompson as a director.

S. B. Thompson recently acquired the entire holdings of the two companies and expects to extend the mains to East Bangor and other small communities adjacent, also make improvements to the plant to take care of the rapidly expanding business.

Natural Gas Association of America's "Coming of Age"

Annual Meeting to Be Held in Tulsa in May

On February 20, 1906, in the old Midland Hotel, Kansas City, Mo., 13 men gathered together in Parlor C for the purpose of forming a natural gas association. The name, "The Natural Gas Association of America," was suggested and adopted, K. M. Mitchell was elected president and J. H. Dunkle secretary. While at lunch, between the morning and afternoon sessions, it was suddenly discovered that the party comprised the hoodoo number of 13. Immediately a commercial traveler was hunted up, invited to join the party, which he did, and, though unknown, proved a good fellow. It is regretted that his name was not ascertained and recorded as one of the founders.

Thus the Natural Gas Association of America was born—in the West; so it is befitting that its coming of age—its 21st birthday—shall be celebrated in the West.

A banner attendance is expected in Tulsa, on May 17, 18, 19 and 20, when the convention of the association and the exhibition of the Natural Gas Supply Men, Inc., will be held.

Plans are formulating rapidly and will be ready for announcement shortly.

Appliance Laboratory at Cleveland Ready to Begin Gas Range Tests

The appliance testing laboratory of the American Gas Association at Cleveland announces that it is now ready to undertake the testing of gas ranges, reports the Pennsylvania Public Service Information Committee.

Each model or type of range sent to the laboratory will be subjected to a series of tests to discover if it measures up to the requirements approved by the gas industry. When a range passes the laboratory test it will bear the official stamp of approval and will be offered the public as a product guaranteed to reach the highest standards of safety, construction and performance.

It is clear that sales of inferior products soon will be wiped out, especially as the executives of gas companies have expressed a determination to deal, in the future, only in those ranges which bear the laboratory stamp of approval.

Some idea of the extensive work planned for the laboratory may be gained from the fact that there are about 250 manufacturers of gas ranges, and perhaps 2,500 different models in this country. In addition, there are 100 manufacturers of water heaters, 125 of space heaters, 20 of garage heaters, 25 of steam gas boilers, 25 of furnace and miscellaneous appliances, making a total of 555.

Record Sendout of Gas by Pacific Gas & Electric Co.

J. M. Dickey, engineer of gas generation for the Pacific Gas and Electric Company, San Francisco, Calif., reports an increase in the use of gas this winter, together with a very satisfactory load factor.

During the month of January the sendout amounted to more than 1,003,000,000 cubic feet. This makes an average daily consumption of over 32,000,000 cubic feet and on the peak day of the month the sendout was 37,044,000 cubic feet The close approach of the average day to the peak day shows a very healthy condition in San Francisco gas business. The total sendout in December was about 907,000,000 cubic feet.

Northern Indiana Gas & Electric Co. Issues 1925 Financial Report

Operating revenue of the Northern Indiana Gas and Electric Company in 1925 was $8,501,757.50, compared with $8,105,950.34 in 1924, according to the annual report of the company made public today.

The Northern Indiana Gas and Electric Company is one of the operating subsidiaries of the Midland Utilities Company.

Net income of the company after the payment of all charges, including interest on the funded debt, was $1,607,035.90, compared with $1,893,177.64 in 1924. After the payment of dividends, $90,314.90 was carried to the surplus account, which aggregated $904,673.84 at the close of the year.

The company's balance sheet shows a total of $37,237,136.61 invested in plants and other property at the close of the year, and the total assets were $41,510,657.05.

The company during the year made expenditures amounting to $3,773,430 for new gas and electric equipment necessary to meet the growing demands for service. The new gas manufacturing plant at Fort Wayne, with a daily capacity of 5,500,000 cubic feet of gas, was completed early in the year.

The company added 6,234 new gas customers and 4,209 new electric customers. The company at the close of the year was supplying 107,219 customers with gas service and 42,018 customers with electric service.

Sales of gas in 1925 totaled 3,806,478,000 cubic feet, compared with 3,651,267,000 cubic feet in 1924, an increase of 155,211,000 cubic feet.

Spring Conference at Atlantic City May 21-22

Arrangements are being made for the executive conference of the Advisory Council and Executive Board of the association, to be held in Atlantic City on May 21 and 22. At these conferences the subjects most vital to the present and future of the gas industry are freely discussed.

Gas Companies Combine Operations

New York City.—To promote efficiency in the field and concentrate supervision, it has been decided to combine the operations of the Albion Gas Light Company, the Holland Gas Company and the Niles Gas Light Company under the direction of Roy Campbell, vice-president of the Michigan Gas and Electric Company, at Three Rivers, Mich.

Mr. Campbell has recently taken over the management of the Southern Division of the Michigan Gas & Electric Company.

"During the past five years," the Three Rivers Commercial says of Mr. Campbell, in commenting on this change: "He has been in northern Michigan, where he has been in charge of what is known as the 'Northern Division' of the Michigan Gas and Electric Company, at Ishpeming, Negaunee and surrounding territory, with gas plants at Houghton, Hancock and Marquette and an electrical property at Munising. He comes directly from these points to Three Rivers, where there are added opportunities and responsibilities. He is a man of genial character, thoroughly well skilled and trained in his chosen profession, and the consumers of electrical energy and gas from the company in southern Michigan are promised a continuation of the same steady, dependable, 24-hour service and courteous treatment which has characterized the operations of that company in the past."

* * *

Lexington Approves Gas Franchise

Lexington, Ky.—Commissioners of Lexington approved a gas franchise that has been drafted as a result of a conference between legal and executive officials of Winchester, Mt. Sterling and Lexington. After an opinion from Dr. M. B. Maltbie, gas expert of New York, who has been employed by the city of Lexington, has been secured, the proposed franchise will be offered to the Central Kentucky Natural Gas Company, with whom the city is at variance concerning the rate to be included in the new franchise.

Consolidated Gas Has a Record Year

Sales of Gas and Electricity and Gross Earnings Show Large Increase

Record sales of gas and electricity and record gross earnings are shown in the report of the Consolidated Gas Company for 1925. An increase in operating expenses, taxes and other items, however, brought net earnings below the 1924 figures. It was stated further by George B. Cortelyou, president, that net earnings would not amount to more than 5.37 per cent on investment as of Dec. 31, although "the company believes that it is constitutionally entitled to earn a return of at least 8 per cent."

Mr. Cortelyou described the Dollar Gas law as an "indefensible piece of hasty legislation," and said it had cost the Consolidated Gas system $1,155,000 in litigation.

Gross earnings of the Consolidated Gas system in 1925 were $134,397,691, an increase of $7,937,731 over 1924. Operating expenses increased by $6,382,570, to $97,345,841, and interest on funded and unfunded debt by $3,333,944, to $10,855,716. Exclusive of $4,124,788 representing collections in excess of the dollar gas rate and held in escrow pending final action by the Supreme Court, net income for 1925 was $26,196,133, a decrease of $1,778,783 from 1924, when collections held in suspense amounted to $5,075,827.

The earnings are equal after preferred dividends to $6.89 a share on the 3,600,000 common shares outstanding, against $7.47 a share in 1924. Surplus after dividend payments totaling $19,100,920 against $18,976,093 in 1924 was $7,095,213 against $8,998,823. Addition of the 1925 surplus and of $745,762 of other items brought the credit balance as of Dec. 31 to $121,366,740.

Of rate litigation he said:

"Throughout 1925, for the first time in several years, there was no taking of rate testimony as to any of the system gas companies. As a result the executive, engineering and accounting staffs of the gas companies were enabled to turn their energies again to the carrying on of the business of the companies and the rendering of good service to the public, and this respite from the onerous labors of rate litigation is reflected in the year's operating results."

Sales of the Consolidated Gas Company and its affiliated gas companies in 1925 amounted to 41,772,241,100 cubic feet, an increase over 1924 of 160,156,700 cubic feet. Affiliated electric companies sold 1,828,792,601 kilowatt hours of current, an increase over 1924 of 167,686,478 kilowatt hours. The Bronx Gas Electric Company obtained the greatest percentage of increased gas sales, its gain being 18.3 per cent. The Northern Westchester Lighting Company obtained the greatest percentage of increased electric sales, at 48.86 per cent gain.

Gas meters in use at the end of 1925 numbered 1,064,281 and electric meters 1,044,377.

At a cost of $12,180,897 for repairs and of $4,387,719 for renewals, a total of $16,588,616, gas and electric properties were kept in an efficient condition.

Trustees of the Consolidated Gas Company were re-elected. There were 2,310,484 shares, or 64.18 per cent of the 3,600,000 common shares, represented at the meeting.

Ohio Gas Profits $672,165

New York City — Operating profit of the West Ohio Gas Company in 1925 was $672,165, according to the annual report of the company, which is a subsidiary of the Midland Utilities Company, and supplies gas in Lima, Ohio, and nearby towns. Last year the company bought the gas plant at Kenton, Ohio. Sales of gas in 1925 totaled 548,250,500 cubic feet to 15,969 persons.